

# RESEARCH NOTES

Rocky Mountain Forest and Range Experiment Station

Raymond Price, Director

FOREST SERVICE - U. S. DEPARTMENT OF AGRICULTURE

Headquarters at Fort Collins, Colorado,  
in cooperation with Colorado State University

No. 40

March 1960

## DDT -- A PREVENTIVE CONTROL FOR THE SOUTHWESTERN PINE BEETLE

by

Calvin L. Massey, Entomologist

The southwestern pine beetle (Dendroctonus barberi Hopk.) is one of the most serious pests of ponderosa pine in the Southwest. It is directly associated with approximately 60 percent of the total annual loss caused by insects in the ponderosa pine type. Loss is heaviest in the fringe type of the host species. In 1952, an estimated 100 million board feet of ponderosa pine was killed by this insect. By 1957, the losses had increased to approximately 600 million board feet.

In 1957, a control program to save trees of high recreational and ornamental value became necessary. Since DDT had proved its merit in preventing attacks of the Engelmann spruce beetle (D. engelmanni Hopk.) on green Engelmann spruce,<sup>1/</sup> a pilot test using the same insecticide was initiated against the southwestern pine beetle.

An outbreak on the Bandelier National Monument in north central New Mexico was selected for study, with the U. S. National Park Service cooperating. Beetle populations were abnormally high and considerable pressure could be expected from surrounding infestations. Trees to be treated in the campground and headquarters at the Monument were banded with aluminum paint. The 286 check trees were intermixed with the 745 green trees to be treated. In the test a 2-percent emulsion of DDT was applied with a power sprayer equipped with an adjustable nozzle and 100 feet of hose. The entire circumference of each stem was treated to a height of approximately 40 feet. The insecticide was applied until the excess started to flow from the bark. Two applications were made--one at the end of May, the other in the middle of July. In September after beetle flight had ceased, examination revealed that 103 of the check trees had been killed by the beetles, but only 3 of the treated trees were infested.

### Summary

A pilot test in cooperation with the U. S. National Park Service revealed that a 2-percent emulsion of DDT applied to green ponderosa pine effectively prevents attacks of the southwestern pine beetle even under extreme population pressures. The entire circumference of the stems must be treated until the insecticide flows from the surface of the bark. Individual trees of high ornamental or recreational value may be protected by this method.

---

<sup>1/</sup> Massey, C. L., and Wygant, N. D. Biology and control of the Engelmann spruce beetle in Colorado. U. S. Dept. Agr. Cir. 944, 35 pp., illus. 1954.